METHODS: Treatment patterns and probability distributions for the Japanese Breast Cancer Treatment Model (JBCTM) were identified and confirmed via a series of meetings with a clinical expert panel and a study-specific survey of practice patterns of over 500 Japanese breast cancer physicians. Since no Japanese guidelines for evaluating level-of-evidence data yet exist, guidelines from the American Society of Clinical Oncology were used to stratify the clinical usage and clinical outcomes data for every drug. Consideration was given to disease stage and treatment setting in assigning the level of evidence, and nodal status, hormone receptor status, and menopausal status were also considered. Costs were obtained from government sources and hospital provider surveys and validated by an expert panel.
RESULTS: The model features treatment pathways for four breast cancer stages and resources and costs for every treatment option in the model. In total, the model includes over 450 level-of-evidence references for more than 60 drug treatments. The model can generate responses to an infinite number of queries regarding the probabilities of receiving a particular treatment in a given setting, cost per treatment, expected cost per patient, and an estimate of cost-effectiveness with consideration given to the evidence level associated with treatments.
CONCLUSIONS: To incorporate level-of-evidence data into a comprehensive treatment model, level-of-evidence guidelines can be applied to treatments in a given setting and combined with published data, data from surveys, and expert opinion to generate a valuable decision-making tool. The treatment pathways, costs and cost-effectiveness, and the evidence level associated with those pathways can then be evaluated on the credibility of clinical results.

PMI4

MARKOV MODELLING TO CONVERT TRIAL-BASED COST-EFFECTIVENESS INFORMATION TO OTHER COUNTRIES—THE TIOTROPIUM EXAMPLE

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OBJECTIVE: Tiotropium is a new once daily bronchodilator for the treatment of patients with Chronic Obstructive Pulmonary Disease (COPD). Treatment patterns in COPD differ considerably between countries and resource use in one country cannot be transferred to other countries without adjustments. The aim of this study was to develop a Markov model to transfer trial-based cost-effectiveness data about tiotropium versus ipratropium, salmeterol and existing therapy from one setting to another.
METHODS: Markov states were defined on the basis of COPD severity (moderate A, moderate B and Severe according to GOLD guidelines). Transition probabilities and probabilities of experiencing a severe or non-severe exacerbation were derived from three trial-based cost-effectiveness analyses, which were performed in the Netherlands, Belgium, the USA and in 18 other countries. Resource use was distinguished into maintenance treatment according to disease severity and treatment associated with exacerbations. The model allowed for country-specific input of resource use and unit costs including the probability and duration of hospitalization during an exacerbation.
RESULTS: All costs other than the cost of study medication were consistently lower in tiotropium than in the other three treatment arms, mainly because of the 13% to 27% lower probability of experiencing a (severe) exacerbation. Costs in the US were approximately twice as high as the costs in the Netherlands and Belgium. The proportion of total costs due to hospitalization varied between 30% and 60%, depending on the treatment arm and the country.
CONCLUSION: The difference between treatment groups observed in the trials could be modeled entirely by the monthly transition probabilities between disease states and the probabilities of experiencing an exacerbation in a given disease state. A Markov model in which resource use depends on disease state and exacerbations, irrespective of treatment group, is well suited to convert trial-based pharmacoeconomic data in COPD to other countries.

PMI5

A PROBLEM WITH STOCHASTIC ECONOMIC EVALUATION WHEN THE TIME HORIZONS FOR THE COST AND EFFECTIVENESS MEASUREMENTS ARE ASYMMETRICAL

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OBJECTIVE: In a recent economic evaluation conducted alongside an RCT, we encountered asymmetry in the time horizons for effectiveness and cost outcomes. The effectiveness variable was evaluated at the end of the trial, but some hospitalizations that started during the RCT continued beyond the end of the trial period. This paper demonstrates how estimates of cost-effectiveness ratios can be very sensitive to this problem at the analysis stage.
METHODS: Medical care resource-use data were collected prospectively in an RCT comparing two treatments for a chronic condition characterized by acute episodes often requiring hospitalization. A vector of country-specific unit costs was used to convert resource consumption into monetary values for the purpose of performing a cost-effectiveness analysis. Effectiveness was measured as the number of successfully treated patients (STPs) at the end of the six-month trial. Cost-effectiveness acceptability curves (CEACs) for analyses that include and exclude components of resource consumption beyond the trial are compared.
RESULTS: The incremental cost per STP is £10,008 if the components of resource use beyond trial are excluded and −£27,200 if included. This result is due to the effect